ZCC-CT

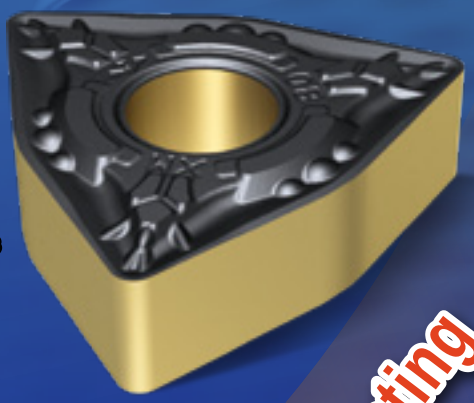
New Grades and Chipbreakers for Turning Steel

YBC103 YBC203

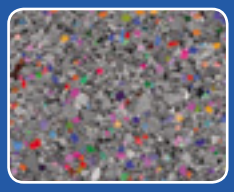
XF / XM / XR

ZHUZHOU CEMENTED CARBIDE
CUTTING TOOLS CO., LTD.

YBC103



New cemented carbide matrix



The composition and microstructure optimized by thermodynamic and kinetic theoretical models have significantly improved the product's resistance against plastic deformation and wear under high temperature.

Grain adjustment technology and the cubic phase grains being finer and more evenly distributed have optimized the insert's performance under high temperature. The coupling change of the bonding property and solid solution gradient have enhanced the strength of the cutting edge.

Fine-grained columnar structure Al_2O_3 ultra-thick coating technology

Outstanding high temperature performance and wear resistance, two-color marking layer and ultra-smooth Al_2O_3 coating rake face account for the improved smoothness and uniformity of the cutting edge and the enhanced surface processing quality.

Hydrogen peroxide gradient transition layer technology

The hydrogen peroxide gradient transition layer adopts PCN technology, which produces fine and dense coating grains, and therefore further improves its high temperature performance and oxidation resistance of the insert.

A new generation of high performance CVD coating

With improved cutting edge's strength, wear resistance and high temperature oxidation resistance, YBC series of coating grades work efficiently in steel processing.

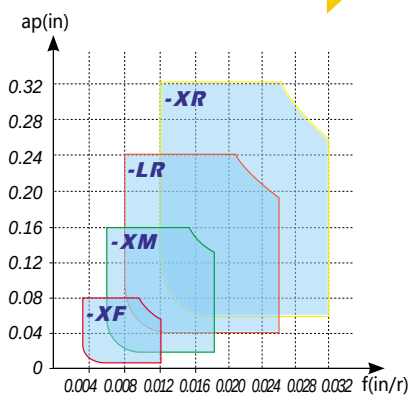
-XF Chip breaker for finishing

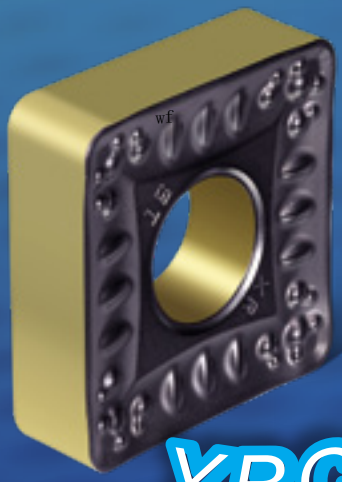
- Curved edge inclination ensures the strength of the cutting edge and reduces cutting resistance.
- The full-curved structure improves its versatility.
- Moreover, the special chip breaker design ensures improved chip control performance within the finishing range.

-XM Chip breaker for semi-finishing

- With the specially designed cutting-edge structure to ensure its sharpness and strength, the newly designed chip breaker geometry, and innovative coating grades, the cutting edge is superior in its strength and wear resistance.
- Its performance is both stable and efficient.

Application range

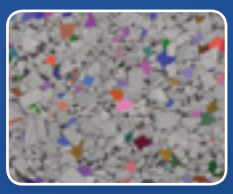




YBC203

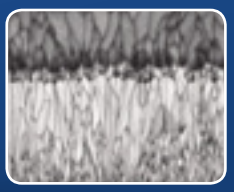
New cemented carbide matrix

The new matrix adopts a new organizational structure and sintering technology, which refines the alloy structure, strengthens the bonding phase, and makes the structure more uniform and the control more precise. As a result, this technology significantly improves its machining efficiency and its resistance against plastic deformation and oxidation under high temperature.

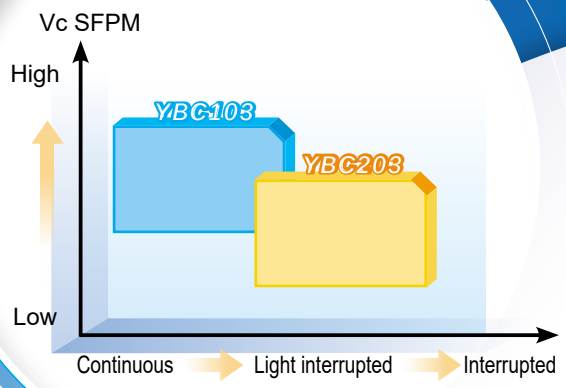


A new generation of ultra-fine grain coating

Ultra-fine grain coating provides outstanding high temperature performance and wear resistance. The two-color marking layer and ultra-smooth Al_2O_3 coating rake face improve the smoothness and uniformity of the cutting edge and enhance the quality of surface processing.

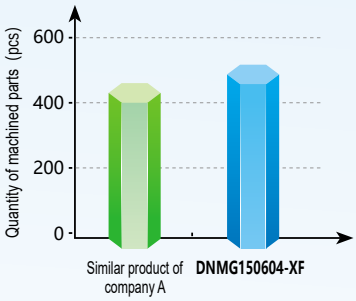


Application range



Applications

Workpiece: Bearing
Workpiece material: GCr15
Hardness of material: HRC30
Insert: DNMG441-XF/YBC103
Cutting parameters: Vc=870 SFPM、ap=0.02~0.03in、f=0.01in/r
Coolant: Without



Conclusion: The insert proved to be superior to the similar products by A company in both efficiency and quality of the finished surface.

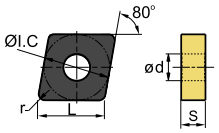
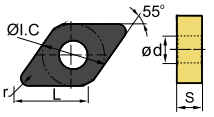
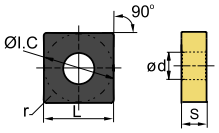
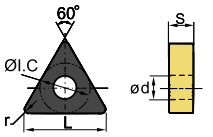
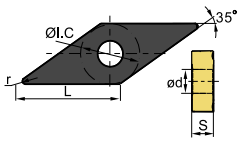
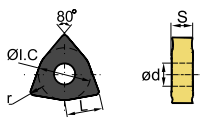
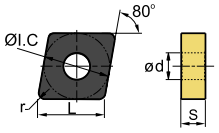
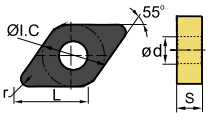
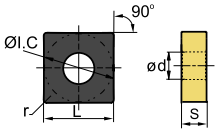
New Chipbreakers for Turning Steel

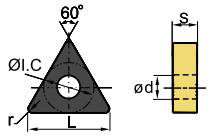
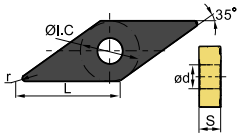
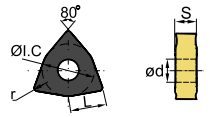
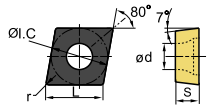
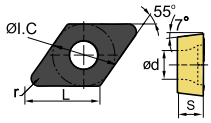
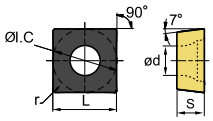
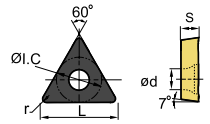
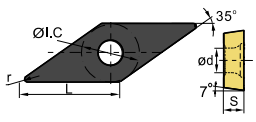
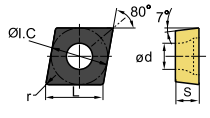
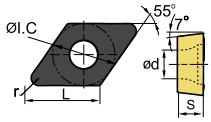
-XR Chip breaker for roughing

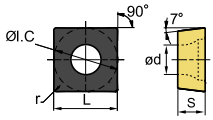
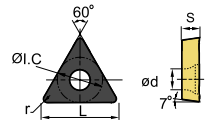
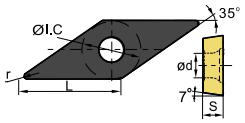
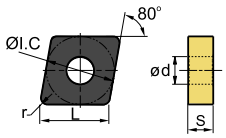
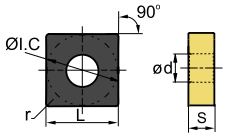
- M-class chip breaker with sharp cutting edge and inclination design has low cutting resistance and excellent chips control, which makes it ideal for light-load roughing.

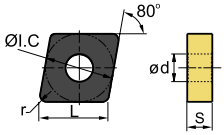
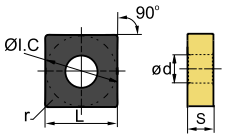
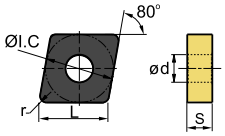
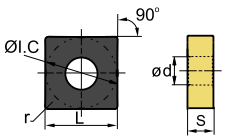
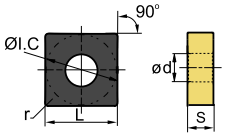
-LR Chip breaker for roughing

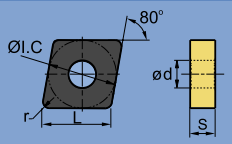
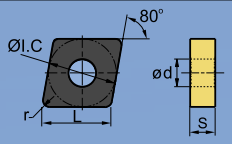
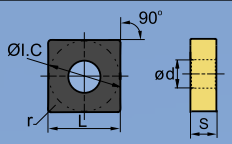
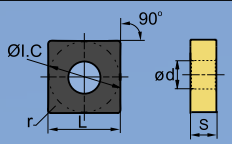
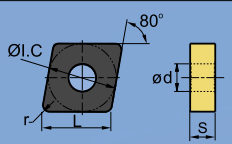
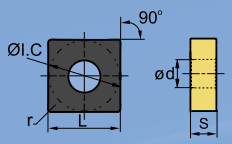
- M-class double-sided chip breaker adopts variable edge design to effectively reduce cutting force and improve chip control, which makes it ideal for light-load roughing.

	Insert shape		Description	Dimension (in)					Grade	
				L	ØI.C	S	ød	r	YBC103	YBC203
-XF Series(Negative inserts)	 Finishing		CNMG431-XF	0.508	0.500	0.187	0.203	0.016	★	★
			CNMG432-XF	0.508	0.500	0.187	0.203	0.031	★	★
			CNMG433-XF	0.508	0.500	0.187	0.203	0.047	★	★
	 Finishing		DNMG441-XF	0.610	0.500	0.250	0.203	0.016	★	★
			DNMG442-XF	0.610	0.500	0.250	0.203	0.031	★	★
			DNMG443-XF	0.610	0.500	0.250	0.203	0.047	★	★
	 Finishing		SNMG431-XF	0.500	0.500	0.187	0.203	0.016	★	★
			SNMG432-XF	0.500	0.500	0.187	0.203	0.031	★	★
	 Finishing		TNMG331-XF	0.650	0.375	0.187	0.150	0.016	★	★
			TNMG332-XF	0.650	0.375	0.187	0.150	0.031	★	★
	 Finishing		VNMG331-XF	0.654	0.375	0.187	0.150	0.016	★	★
			VNMG332-XF	0.654	0.375	0.187	0.150	0.031	★	★
			VNMG333-XF	0.654	0.375	0.187	0.150	0.047	★	★
	 Finishing		WNMG431-XF	0.343	0.500	0.187	0.203	0.016	★	★
			WNMG432-XF	0.343	0.500	0.187	0.203	0.031	★	★
			WNMG433-XF	0.343	0.500	0.187	0.203	0.047	★	★
-XM Series(Negative inserts)	 Semi-finishing		CNMG431-XM	0.508	0.500	0.187	0.203	0.016	★	★
			CNMG432-XM	0.508	0.500	0.187	0.203	0.031	★	★
			CNMG433-XM	0.508	0.500	0.187	0.203	0.047	★	★
			CNMG434-XM	0.508	0.500	0.187	0.203	0.016	★	★
			CNMG542-XM	0.634	0.625	0.250	0.250	0.031	★	★
			CNMG543-XM	0.634	0.625	0.250	0.250	0.047	★	★
			CNMG544-XM	0.634	0.625	0.250	0.250	0.063	★	★
			CNMG643-XM	0.760	0.750	0.250	0.313	0.047	★	★
			CNMG644-XM	0.760	0.750	0.250	0.313	0.063	★	★
	 Semi-finishing		DNMG441-XM	0.610	0.500	0.250	0.203	0.016	★	★
			DNMG442-XM	0.610	0.500	0.250	0.203	0.031	★	★
			DNMG443-XM	0.610	0.500	0.250	0.203	0.047	★	★
			DNMG444-XM	0.610	0.500	0.250	0.203	0.063	★	★
	 Semi-finishing		SNMG432-XM	0.500	0.500	0.187	0.203	0.031	★	★
			SNMG433-XM	0.500	0.500	0.187	0.203	0.047	★	★

	Insert shape		Description	Dimension (in)					Grade	
				L	ØI.C	S	ød	r	YBC103	YBC203
-XM Series(Negative inserts)	Semi-finishing		**TNMG332-XM**	0.650	0.375	0.187	0.150	0.031	★	★
			TNMG333-XM	0.650	0.375	0.187	0.150	0.047	★	★
	Semi-finishing		**VNMG331-XM**	0.654	0.375	0.187	0.150	0.016	★	★
			VNMG332-XM	0.654	0.375	0.187	0.150	0.031	★	★
	Semi-finishing		**WNMG431-XM**	0.343	0.500	0.187	0.203	0.016	★	★
			WNMG432-XM	0.343	0.500	0.187	0.203	0.031	★	★
			WNMG433-XM	0.343	0.500	0.187	0.203	0.047	★	★
			WNMG434-XM	0.343	0.500	0.187	0.203	0.063	★	
-XM Series(Positive inserts)	Finishing		**CCMT2(1.5)1-XF**	0.252	0.250	0.094	0.110	0.016	★	★
			CCMT3(2.5)1-XF	0.382	0.375	0.156	0.173	0.016	★	★
			CCMT3(2.5)2-XF	0.382	0.375	0.156	0.173	0.031	★	★
	Finishing		**DCMT2(1.5)1-XF**	0.307	0.250	0.094	0.110	0.016	★	★
			DCMT2(1.5)2-XF	0.307	0.250	0.094	0.110	0.031	★	★
			DCMT3(2.5)1-XF	0.457	0.375	0.156	0.173	0.016	★	★
			DCMT3(2.5)2-XF	0.457	0.375	0.156	0.173	0.031	★	★
	Finishing		**SCMT3(2.5)1-XF**	0.375	0.375	0.156	0.173	0.016	★	★
			SCMT3(2.5)2-XF	0.375	0.375	0.156	0.173	0.031	★	★
	Finishing		**TCMT2(1.5)1-XF**	0.433	0.250	0.094	0.110	0.016	★	★
			TCMT2(1.5)2-XF	0.433	0.250	0.094	0.110	0.031	★	★
			TCMT3(2.5)1-XF	0.65	0.375	0.156	0.173	0.016	★	★
			TCMT3(2.5)2-XF	0.65	0.375	0.156	0.173	0.031	★	★
	Finishing		**VBMT221-XF**	0.433	0.250	0.125	0.110	0.016	★	★
			VBMT222-XF	0.433	0.250	0.125	0.110	0.031	★	★
			VBMT331-XF	0.650	0.375	0.187	0.173	0.016	★	★
			VBMT332-XF	0.650	0.375	0.187	0.173	0.031	★	★
-XM Series(Positive inserts)	Semi-finishing		**CCMT3(2.5)1-XM**	0.382	0.375	0.156	0.173	0.016	★	★
			CCMT3(2.5)2-XM	0.382	0.375	0.156	0.173	0.031	★	★
			CCMT3(2.5)3-XM	0.382	0.375	0.156	0.173	0.047	★	★
			CCMT431-XM	0.508	0.500	0.187	0.219	0.016	★	★
			CCMT432-XM	0.508	0.500	0.187	0.219	0.031	★	★
			CCMT433-XM	0.508	0.500	0.187	0.219	0.047	★	★
	Semi-finishing		**DCMT3(2.5)1-XM**	0.457	0.375	0.156	0.173	0.016	★	★
			DCMT3(2.5)2-XM	0.457	0.375	0.156	0.173	0.031	★	★
			DCMT3(2.5)3-XM	0.457	0.375	0.156	0.173	0.047	★	★

	Insert shape		Description	Dimension (in)					Grade	
				L	ØI.C	S	ød	r	YBC103	YBC203
-XM Series(Positive inserts)	 Semi-finishing		**SCMT3(2.5)1-XM**	0.375	0.375	0.156	0.173	0.016	★	★
			SCMT3(2.5)2-XM	0.375	0.375	0.156	0.173	0.031	★	★
	 Semi-finishing		**TCMT3(2.5)1-XM**	0.650	0.375	0.156	0.173	0.016	★	★
			TCMT3(2.5)2-XM	0.650	0.375	0.156	0.173	0.031	★	★
			TCMT3(2.5)3-XM	0.650	0.375	0.156	0.173	0.047	★	★
	 Semi-finishing		**VBMT331-XM**	0.650	0.375	0.187	0.173	0.016	★	★
			VBMT332-XM	0.650	0.375	0.187	0.173	0.031	★	★
			VBMT333-XM	0.650	0.375	0.187	0.173	0.047	★	★
-LR Series	 Light roughing		**CNMG432-LR**	0.508	0.500	0.187	0.203	0.031	★	★
			CNMG433-LR	0.508	0.500	0.187	0.203	0.047	★	★
			CNMG434-LR	0.508	0.500	0.187	0.203	0.063	★	★
			CNMG542-LR	0.634	0.625	0.250	0.250	0.031	★	★
			CNMG543-LR	0.634	0.625	0.250	0.250	0.047	★	★
			CNMG544-LR	0.634	0.625	0.250	0.250	0.063	★	★
			CNMG642-LR	0.760	0.750	0.250	0.313	0.031	★	★
			CNMG643-LR	0.760	0.750	0.250	0.313	0.047	★	★
			CNMG644-LR	0.760	0.750	0.250	0.313	0.063	★	★
			CNMG646-LR	0.760	0.750	0.250	0.313	0.094	★	★
			CNMG856-LR	1.015	1.000	0.313	0.359	0.094	★	★
			CNMG866-LR	1.015	1.000	0.375	0.359	0.094	★	★
	 Light roughing		**SNMG432-LR**	0.500	0.500	0.187	0.203	0.031	★	★
			SNMG433-LR	0.500	0.500	0.187	0.203	0.047	★	★
			SNMG434-LR	0.500	0.500	0.187	0.203	0.063	★	★
			SNMG542-LR	0.625	0.625	0.250	0.250	0.031	★	★
			SNMG543-LR	0.625	0.625	0.250	0.250	0.047	★	★
			SNMG544-LR	0.625	0.625	0.250	0.250	0.063	★	★
			SNMG642-LR	0.750	0.750	0.250	0.313	0.031	★	★
			SNMG643-LR	0.750	0.750	0.250	0.313	0.047	★	★
			SNMG644-LR	0.750	0.750	0.250	0.313	0.063	★	★
			SNMG646-LR	0.750	0.750	0.250	0.313	0.094	★	★
			SNMG856-LR	1.000	1.000	0.313	0.359	0.094	★	★
			SNMG866-LR	1.000	1.000	0.375	0.359	0.094	★	★

	Insert shape		Description	Dimension (in)					Grade	
				L	ØI.C	S	ød	r	YBC103	YBC203
-XR Series	 Light roughing		**CNMM542-XR**	0.634	0.625	0.250	0.250	0.031	★	★
			CNMM543-XR	0.634	0.625	0.250	0.250	0.047	★	★
			CNMM544-XR	0.634	0.625	0.250	0.250	0.063	★	★
			CNMM642-XR	0.760	0.750	0.250	0.313	0.031	★	★
			CNMM643-XR	0.760	0.750	0.250	0.313	0.047	★	★
			CNMM644-XR	0.760	0.750	0.250	0.313	0.063	★	★
			CNMM856-XR	1.015	1.000	0.313	0.359	0.094	★	★
			CNMM866-XR	1.015	1.000	0.375	0.359	0.094	★	★
	 Light roughing		**SNMM542-XR**	0.625	0.625	0.250	0.250	0.031	★	★
			SNMM543-XR	0.625	0.625	0.250	0.250	0.047	★	★
			SNMM544-XR	0.625	0.625	0.250	0.250	0.063	★	★
			SNMM642-XR	0.750	0.750	0.250	0.313	0.031	★	★
			SNMM643-XR	0.750	0.750	0.250	0.313	0.047	★	★
			SNMM644-XR	0.750	0.750	0.250	0.313	0.063	★	★
			SNMM856-XR	1.000	1.000	0.313	0.359	0.094	★	★
			SNMM866-XR	1.000	1.000	0.375	0.359	0.094	★	★
-DR Series	 Light roughing		**CNMG642-DR**	0.760	0.750	0.250	0.313	0.031	★	★
			CNMG643-DR	0.760	0.750	0.250	0.313	0.047	★	★
			CNMG644-DR	0.760	0.750	0.250	0.313	0.063	★	★
			CNMG646-DR	0.760	0.750	0.250	0.313	0.094	★	★
			CNMG866-DR	1.015	1.000	0.375	0.359	0.094	★	★
	 Light roughing		**SNMG643-DR**	0.750	0.750	0.250	0.313	0.047	★	★
			SNMG644-DR	0.750	0.750	0.250	0.313	0.063	★	★
			SNMG646-DR	0.750	0.750	0.250	0.313	0.094	★	★
	 Light roughing		**SNMM642-DR**	0.750	0.750	0.250	0.313	0.031	★	★
			SNMM643-DR	0.750	0.750	0.250	0.313	0.047	★	★
			SNMM644-DR	0.750	0.750	0.250	0.313	0.063	★	★
			SNMM646-DR	0.750	0.750	0.250	0.313	0.094	★	★
			SNMM856-DR	1.000	1.000	0.313	0.359	0.094	★	★
			SNMM866-DR	1.000	1.000	0.375	0.359	0.094	★	★

	Insert shape		Specification	Dimension (in)					Grade	
				L	ØI.C	S	ød	r	YBC103	YBC203
-ER Series	 Roughing		CNMG643-ER	0.760	0.750	0.250	0.313	0.047	★	★
			CNMG644-ER	0.760	0.750	0.250	0.313	0.063	★	★
	 Roughing		CNMM856-ER	1.015	1.000	0.313	0.359	0.094	★	★
			CNMM858-ER	1.015	1.000	0.313	0.359	0.126	★	★
			CNMM866-ER	1.015	1.000	0.375	0.359	0.094	★	★
			CNMM868-ER	1.015	1.000	0.375	0.359	0.126	★	★
	 Roughing		SNMG643-ER	0.750	0.750	0.250	0.313	0.047	★	★
			SNMG644-ER	0.750	0.750	0.250	0.313	0.063	★	★
	 Roughing		SNMM856-ER	1.000	1.000	0.313	0.359	0.094	★	★
			SNMM858-ER	1.000	1.000	0.313	0.359	0.126	★	★
			SNMM866-ER	1.000	1.000	0.375	0.359	0.094	★	★
			SNMM868-ER	1.000	1.000	0.375	0.359	0.126	★	★
-HDR Series	 Heavy Turning		CNMM643-HDR	0.760	0.750	0.250	0.313	0.047	★	★
			CNMM644-HDR	0.760	0.750	0.250	0.313	0.063	★	★
			CNMM646-HDR	0.760	0.750	0.250	0.313	0.094	★	★
			CNMM866-HDR	1.015	1.000	0.375	0.359	0.094	★	★
	 Heavy Turning		SNMM642-HDR	0.750	0.750	0.250	0.313	0.031	★	★
			SNMM643-HDR	0.750	0.750	0.250	0.313	0.047	★	★
			SNMM644-HDR	0.750	0.750	0.250	0.313	0.063	★	★
			SNMM646-HDR	0.750	0.750	0.250	0.313	0.094	★	★
			SNMM856-HDR	1.000	1.000	0.313	0.359	0.094	★	★
			SNMM866-HDR	1.000	1.000	0.375	0.359	0.094	★	★

ZCC USA Inc.

36 22 W. Liberty Rd. Ann Arbor, MI 48103
Tel: 734-997-3811
Fax: 734-997-3820
E-Mail: info@zccusa.com
Http://www.zccusa.com